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Date: September 12, 2006

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(Quyen Nguyen)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/706,151

Confirmation No.: 7582

Filing Date: November 12, 2003

Inventor(s): Michael R. ROTHROCK

Title: TECHNIQUES FOR SEARCHING FOR BEST MATCHES IN  
TABLES OF INFORMATION

Examiner: H. Thai

Group Art Unit: 2163

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Washington, D.C. 22313-1450

**APPEAL BRIEF**

Sir/Madam:

This is an appeal brief to the final Office Action mailed March 23, 2006.

Applicant submitted a Notice of Appeal on June 22, 2006 for which an appeal brief is due on August 22, 2006. A petition for a one month extension of time is filed herewith, thereby extending the deadline for response to September 22, 2006. Accordingly, this brief is timely filed.

**I. Real Party in Interest**

This application is assigned to Portal Software, Inc of Cupertino, California.

**II. Related Appeals and Interferences**

There are no related Appeals and Interferences.

**III. Status of claims**

Claims 32, 34-36 and 38-43 were rejected. Claims 1-31, 33 and 37 were canceled. Claims 32, 34-36 and 38-43 are currently under appeal.

**IV. Status of Amendment**

No amendment was made subsequent to final rejection.

**V. Summary of Claimed Subject Matter**

The independent claims on appeal are Claims 32 and 35. All noted specification locations below are for exemplary purposes only and are not intended to be limiting.

Claim 32 is directed to a method for searching in a table storing information for dynamic call routing, the method including generating multiple trees of data and modifying, updating, and traversing a first tree and saving information in the second tree that is encountered while traversing the first tree. Claim 35 is directed to a generally similar method. Non-limiting, exemplary details of Claims 32 and 35 and dependents thereof are described passim and on page 6, line 19 - page 7, line 31; page 8, line 28 - page 9, line 7; and page 9, lines 17 - 19.

**VI. Grounds of Rejection to be Reviewed on Appeal**

Whether the Final Office Action mailed 23 March 2006 was properly made final.

Whether claims 32-40 and 42-43 are unpatentable under 35 U.S.C. 103(a) as being obvious under Bournas, U.S. Patent No. 6,061,679 ("Bournas") in view of St. Denis et al., U.S. Patent No. 6,490,592 ("St. Denis").

Whether claims 39 and 41 are unpatentable under 35 U.S.C. 103(a) as being obvious under Bournas, in view of St. Denis et al., and further in view of Forslow, U.S. Patent No. 6,973,057 ("Forslow").

**VII. Argument**

**A. Final Action Appropriateness**

MPEP § 706.07(a) states that the "second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement." The Final Office Action of 23 March 2006 ("Final Office Action") states that the Applicant's proposed amendments in the telephonic interview 29 December 2005 ("Interview") were deemed sufficient to "overcome the art of record", yet the Final Office Action later states that "Applicant's amendment necessitated the new ground(s) of rejection". However, the amendments made in Applicant's response of 30 December 2005 ("Response") were made as agreed

upon in the Interview, and all pending claims – including both pending independent claims - were rejected using art not of record at the time of the Interview and not submitted in an Information Disclosure Statement.

Furthermore, MPEP § 706.07 states, “[t]he examiner should never lose sight of the fact that in every case the applicant is entitled to a full and fair hearing, and that a clear issue between applicant and examiner should be developed, if possible, before appeal.” However, Applicant submits that the Response fully addressed the Examiner’s issues presented in the Office Action of 16 September 2005 and clarified in the Interview. Applicant has not had a chance to respond to any new issues raised by the Examiner since the Interview.

Therefore, Applicant submits that the Final Office Action was improperly made final and requests that the appeal fee be refunded and that the Final Office Action be amended to a non-final Office Action.

**B. 35 U.S.C. § 103(a), Claims 32, 34-36, 38, 40 and 42-43**

The Final Office Action rejected claims 32, 34-36, 38, 40 and 42-43 under 35 U.S.C. §103(a) as being allegedly obvious under Bournas in view of St. Denis. Applicant disagrees because the Final Office Action does not present a *prima facie* case of obviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the

reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP § 2142 (2006).

The Final Office Action fails to present a *prima facie* case of obviousness because St. Denis fails to disclose the allegedly missing claim elements from Bournas, and because insufficient motivation exists to combine the searching method of Bournas with the saving method of St. Denis.

**i. St. Denis and Bournas do not combine to teach or suggest all of the limitations of the independent claims.**

For Claims 32 and 35, the Examiner appears to be confusing the values within the nodes of a tree for the address qualifiers and address variations for the trees. More specifically, the Examiner seems to be confusing the “key masks” and “key mask ranges” of Bournas for node values.

As explained by Bournas: “[A] key is an address.” Bournas, col. 5, line 17. “Each group of addressable elements [i.e., “tree”] has one address [i.e., “key”].” Bournas, col. 5, line 28-29. “[A] key mask...is used to qualify a requested key (e.g., an address).” Bournas, col. 5, lines 30-31. “[T]he key mask is used to designate variations in an address.” Bournas, col. 5, line 38. “Each key mask has an associated

range, which indicates the degree of specificity of the subnet.” Bournas, col. 5, lines 58-59.

Accordingly, Bournas fails to disclose “a first tree node having first tree data” where the first tree data is the “key mask of 1”, since the key mask is not disclosed by Bournas as a node of the tree. Bournas discloses key masks and key mask ranges that are tree-specific, not node-specific. The key masks and key mask ranges are associated with the trees, but not stored in nodes of the trees. (Bournas, Fig. 3a, col. 5, lines 29-30, “associated with each group of addressable elements [i.e., “tree”] a key mask”, and col. 5, line 58, “[e]ach key mask has an associated range”).

Specifically regarding Claim 32, the Final Office Action states that Bournas fails to “explicitly disclose [the claim limitation of] saving the information that is encountered when traversing the first tree in the second tree. St. Denis, on the other hand, discloses method of generating a tree data structure including storing traversing data element into a tree structure.” (sic)

Note that the Final Office Action does not even allege that St. Denis teaches saving information encountered when traversing a first tree in the second tree, which is also missing from Bournas yet a limitation of Claim 32. St. Denis only traverses and saves on the same “tree data structure”, not first and second trees.

Furthermore, Bournas fails to disclose “dynamically modifying the first tree data” as proposed by the Final Office Action. The Final Office Action states that Bournas discloses that the first tree data is the key mask (e.g., “Bournas discloses the first tree having the first tree data ‘key mask of 1’”). The Final Office Action then

points to col.9, line 40 to col. 10, line 4 of Bournas to show that Bournas discloses the claim limitation of “dynamically modifying the first tree data”. However, the key mask is an address qualifier and Bournas merely discloses deleting a node to which the key mask points, not deleting or otherwise modifying the key mask itself.

Thus, the combination of St. Denis and Bournas fails to teach or suggest all the claim limitations of Claim 32.

Specifically regarding Claim 35, the Final Office Action states that the first and second values of Claim 35 are disclosed by the key mask ranges in Bournas. (Note that the Final Office Action states “a routing table with trees that has the values of 1, 32 and 64”, but Bournas discloses “1, 32 and 64” as the key mask ranges, not as values within nodes of the tree.)

The Final Office Action also states that the limitation “building a second tree comprising a second tree node according to the second value” is disclosed by Bournas in “Fig. 3a and col. 6, lines 1-16, Bournas discloses the second tree that has a second key value of 32.” However, Bournas discloses the “key mask range of 32”, but not a “second key value of 32”, as stated by the Final Office Action. In Bournas, the second tree node is not built according to the “second key value of 32”. In Bournas, the node value is not even related to the key mask range. In fact, the key mask ranges are disclosed by Bournas as tree-specific, not node-specific.

Thus, the combination of St. Denis and Bournas fails to teach or suggest all the claim limitations of Claim 35.

**ii. The combined references do not present a proper motive to combine.**

The Final Office Action states that “[i]t would have been obvious...to create a tree by saving the traversing data element of another tree as taught by St. Denis to derive the invention as claimed. The motivation of doing so would have been to enable the longest match to a desired IP address to be located.”

Applicant respectfully submits that the Final Office Action’s proposed motivation to combine Bournas and St. Denis is improper for numerous reasons.

The motivation the Final Office Action provided to combine Bournas and St. Denis is not satisfied by the combination presented by the Examiner. Combining the saving step of St. Denis with searching steps of Bournas (1) does not necessarily enable a “longest” match, (2) nor does the motivation mention the saving of data, which is the only portion of the method allegedly contributed by St. Denis.

Likewise, the motivation presented is a motivation solved by St. Denis and not by Bournas, so one having ordinary skill in the art would not have combined Bournas with St. Denis to enable a “longest match” since St. Denis already supports a “longest match lookup.”

Furthermore, Applicant submits that one having ordinary skill in the art would not be motivated to combine an unrelated single step of a first teaching with numerous steps of a second teaching when the motivation to combine exists only in the first teaching. The Final Office Action proposes adding a step of St. Denis, unrelated to the motivation, to the numerous steps in Bournas for motivation provided in St. Denis, not in Bournas. Applicant submits that the motivation presented in the Final Office Action would fail to motivate one having ordinary skill in the art to

combine a single step from St. Denis that is not related to a “longest method” match with numerous steps from other methods based on the above motivation presented in St. Denis.

The Examiner is precluded from modifying or combining the teachings of Bournas and St. Denis in an effort to teach the limitations of the pending claims because there is no indication in either of the references as to the desirability of making such modifications. The mere fact that Bournas and St. Denis involve data structure search methods does not provide the required suggestion to obviate every data structure search method that has a combination of elements from Bournas and St. Denis.

Furthermore, the Applicant submits that this combination is made using hindsight to reconstruct Applicant’s claims, but without the appropriate motivation to do so. That is, the Office Action appears to merely state that it would have been obvious to combine selected teachings of the references because of the benefits shown by Applicant’s invention, and not because of reasons explicitly stated in the references.

As stated above, the cited references must disclose the desirability of making the proposed modification. *In re Mills*, 916 F.2d 680, 682 (Fed. Cir. 1990). The fact that the modification is possible or even advantageous is not enough. See *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984). A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). (*See also* M.P.E.P. §2141.02).

The U.S. Court of Appeals for the Federal Circuit has held that the fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification. In *re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992). Nothing in *Sköld* or *Brown et al.* suggests or motivates the proposed combinations or modifications, nor has the Examiner provided sufficient evidence that suggests or motivates the proposed combinations or modification.

This combination still fails to teach or suggest all of the claim limitations and does not present a proper motive to combine.

Applicant requests withdrawal of this rejection.

**C. 35 U.S.C. §103(a), Claims 39 and 41**

The Office Action rejected claims 39 and 41 under 35 U.S.C. §103(a) as being unpatentable over Bournas in view of St. Denis and further in view of Forslow.

Applicant disagrees because the Office Action does not present a prima facie case of obviousness.

In view of the arguments above, a prima facie case of obviousness has not been established as applied to claims 32, 34-36, 38, 40 and 42-43 by Bournas and St. Denis. Forslow fails to add to this. This combination still fails to teach or suggest all of the claim limitations and does not present a proper motive to combine.

Applicant requests withdrawal of this rejection.

## **VIII. Claims Appendix**

1-31. (cancelled)

32. A computer-implemented method of searching for best matches in a table storing information for dynamic call routing, the method comprising:

- generating a first tree comprising first tree data;
- dynamically modifying the first tree data;
- updating the first tree data to the dynamically modified first tree data;
- traversing the first tree; and

generating a second tree comprising second tree data wherein generating the second tree comprises saving the information that is encountered when traversing the first tree in the second tree.

33. (cancelled)

34. The method of Claim 32, further comprising traversing the second tree.

35. A computer-implemented method of searching for best matches in a table storing information for dynamic call routing, the method comprising:

- generating a first tree comprising a first tree node having first tree data;
- receiving first and second values;
- building a second tree comprising a second tree node according to the second value;
- traversing the first tree node according to the first value;
- traversing the second tree node according to the second value; and
- editing information into the node of the second tree, wherein the editing comprises overwriting, and wherein overwriting comprises a new data overriding an old data.

36. The method of Claim 35, wherein editing comprises adding information.

37 (canceled)

38. The method of Claim 32, wherein the first tree data comprises an IP address and route.

39. The method of Claim 38, wherein the IP address is a Voice Over IP address.

40. The method of Claim 35, wherein the first tree data comprises an IP address and route.

41. The method of Claim 40, wherein the wherein the IP address is a Voice Over IP address.

42. The method of Claim 35, wherein the old data is larger than the new data.

43. The method of Claim 42, wherein the old data is longer than the new data.

**IX. Evidence Appendix**

none

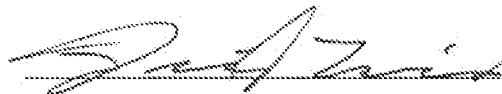
**X. Related Proceedings Appendix.**

none

**SUMMARY**

Applicant believes all outstanding issues raised in the previous Office Action are addressed herein and that the claims are in condition for allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David A. Levine", written over a horizontal line.

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